

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended) A method of determining ~~the a~~ rate of dilution of ~~the a~~ lubricating oil by ~~the fuel~~ of an internal combustion engine, where either the lubricating oil or the fuel is marked with a radioactive tracer, the method comprising: wherein:

- ~~— either the lubricating oil or the fuel is marked with a radioactive tracer,~~
- measuring the radioactivity of an oil sample is measured using a detector that is sensitive to ~~the~~ radioactive radiation emitted by the radioactive tracer, and
- transmitting the results of these the measurements are transmitted to a computer, and
- the computer calculating which calculates from these results the rate of dilution of the lubricating oil by the fuel based on the results.

2. (currently amended) A~~The~~ method according to claim 1, wherein ~~it is the~~ lubricating oil ~~that~~ contains the radioactive tracer.

3. (currently amended) A~~The~~ method according to claim 1, wherein ~~it is the~~ fuel ~~that~~ contains the radioactive tracer.

4. (currently amended)      ~~A-~~The method according to ~~one of the preceding~~  
~~claims~~claim 1, wherein the oil sample for which the radioactivity is measured is ~~carried~~  
~~conveyed~~ towards the detector and then re-injected into ~~the~~ an oil system of the internal  
combustion engine by a deviation.

5. (currently amended)      ~~A-~~The method according to claim 4, wherein the deviation  
takes the oil sample from an area of the oil system of the engine which ~~is~~ is under no or low oil  
pressure.

6. (currently amended)      ~~A-~~The method according to ~~any of the preceding~~  
~~claims~~claim 1, wherein the radioactive tracer is an organic or mineral compound of a radioactive  
element, ~~preferably an organic compound of a radioactive element.~~

7. (currently amended)      ~~A-~~The method according to ~~one of the preceding~~  
~~claims~~claim 6, wherein the radioactive element has a half-life of less than 3 years, ~~preferably less~~  
~~than 1 year, and in particular less than 30 days.~~

8. (currently amended)      A-~~The~~ method according to claim 7, wherein the radioactive element is selected ~~among from the group consisting of~~ <sup>22</sup>Na, <sup>65</sup>Zn, <sup>45</sup>Ca, <sup>35</sup>S, <sup>32</sup>P, <sup>47</sup>Ca, <sup>99</sup>Mo, <sup>82</sup>Br, <sup>64</sup>Cu, <sup>99m</sup>Tc, <sup>28</sup>Mg, <sup>68</sup>Ge, <sup>69</sup>Ge, <sup>77</sup>Ge, <sup>85</sup>Sr and <sup>56</sup>Co.

9. (currently amended)      A-~~The~~ method according to claim 8, wherein the radioactive tracer is selected ~~among from the~~ tetra-alkyl germaniums containing <sup>69</sup>Ge, ~~preferably among the tetra-hexyl germaniums, the tetra-heptyl germaniums and the tetra-octyl germaniums, or a mixture thereof.~~

10. (currently amended)      A-~~The~~ method according to ~~any of the preceding claims~~ claim 1, wherein the detector is an ionizing radiation detection probe.

11. (currently amended)      A ~~device-system~~ for monitoring ~~the~~ a rate of dilution of the a lubricating oil by the fuel of an internal combustion engine, the internal combustion engine being lubricated by a lubricating oil and supplied with an air/fuel mixture, with either the lubricating oil or the fuel containing a radioactive tracer, the system wherein it comprises comprising:

-      ~~an internal combustion engine, lubricated by a lubricating oil and supplied with an air/fuel mixture, with either the lubricating oil or the fuel containing a radioactive tracer,~~

- ~~a means allowing the for temporary temporarily~~ sampling and ~~the re-injection then re-injecting~~, continuously or discontinuously, ~~of an oil sample from the an~~ oil system of the internal combustion engine,
- a detector, sensitive to ~~the~~ radioactive radiation emitted by the radioactive tracer present in the oil sample and operable to measure the emitted radioactive radiation, ~~which is in the immediate vicinity of this is provided adjacent to the means of for~~ temporary sampling and re-injection of the oil sample, and
- a computer, connected to ~~said the~~ detector, ~~a computer is~~ programmed to calculate, from ~~the measurement~~ results provided by ~~said the~~ detector ~~of the measurements of the radioactivity of the oil sample~~, the rate of dilution of the lubricating oil by the fuel.

12. (currently amended)     ~~A-The device system~~ according to claim 11, wherein ~~it is~~ the lubricating oil ~~that~~ contains the radioactive tracer.

13. (currently amended)     ~~A-The device system~~ according to claim 11, wherein ~~it is~~ the fuel ~~that~~ contains the radioactive tracer.

14. (currently amended)     ~~A-The device system~~ according to ~~either of the claims 11 and 12~~ claim 11,

wherein the means for temporary sampling and re-injection of the oil sample ~~allowing the temporary sampling and the re-injection, continuously or discontinuously,~~ of an oil sample is a deviation.

15. (currently amended) ~~A-The device-system~~ according to claim ~~44~~11, wherein the means for temporary sampling and re-injection of the oil sample ~~deviation~~ samples and re-injects the oil sample in an area of the oil system of the engine which is under no or low oil pressure.

16. (currently amended) ~~A-The device-system~~ according to ~~any of the claims 11 to 15~~claim 11, wherein

the radioactive tracer is an organic or mineral compound of a radioactive element, ~~preferably an organic compound of a radioactive element.~~

17. (currently amended) ~~A-The device-system~~ according to ~~any of the claims 11 to 16~~claim 16, wherein the radioactive element has a half-life of less than 3 years, ~~preferably less than 1 year, and in particular less than 30 days.~~

18. (currently amended) ~~A-The device-system~~ according to claim 17, wherein the radioactive element is selected ~~among~~ from the group consisting of <sup>22</sup>Na, <sup>65</sup>Zn, <sup>45</sup>Ca, <sup>35</sup>S, <sup>32</sup>P, <sup>47</sup>Ca, <sup>99</sup>Mo, <sup>82</sup>Br, <sup>64</sup>Cu, <sup>99m</sup>Tc, <sup>28</sup>Mg, <sup>68</sup>Gc, <sup>69</sup>Gc, <sup>77</sup>Gc, <sup>85</sup>Sr and <sup>56</sup>Co.

19. (currently amended)     A-~~The device system~~ according to claim 18, wherein the radioactive tracer is selected ~~among from the~~ tetra-alkyl germaniums containing <sup>69</sup>Ge, preferably among the tetra-hexyl germaniums, the tetra-heptyl germaniums and the tetra-octyl germaniums, or a mixture thereof.

20. (currently amended)     A-~~The device system~~ according to ~~any of the claims 11 to 19~~ claim 11, wherein the detector is an ionizing radiation detection probe.

21. (new) The method according to claim 1, wherein the radioactive tracer is an organic compound of a radioactive element.

22. (new) The method according to claim 6, wherein the radioactive element has a half-life of less than 1 year.

23. (new) The method according to claim 6, wherein the radioactive element has a half-life of less than 30 days.

24. (new) The method according to claim 8, wherein the radioactive tracer is selected from the group consisting of tetra-hexyl germaniums, tetra-heptyl germaniums and tetra-octyl germaniums or a mixture thereof.

25. (new) The system according to claim 11, wherein the radioactive tracer is an organic compound of a radioactive element.

26. (new) The system according to claim 16, wherein the radioactive element has a half-life of less than 1 year.

27. (new) The system according to claim 16, wherein the radioactive element has a half-life of less than 30 days.

28. (new) The system according to claim 18, wherein the radioactive tracer is selected from the group consisting of tetra-hexyl germaniums, tetra-heptyl germaniums and tetra-octyl germaniums or a mixture thereof.